Utah Statewide Mercury Work Group Meeting

Air Quality Issues
Policy and Analysis Limitations

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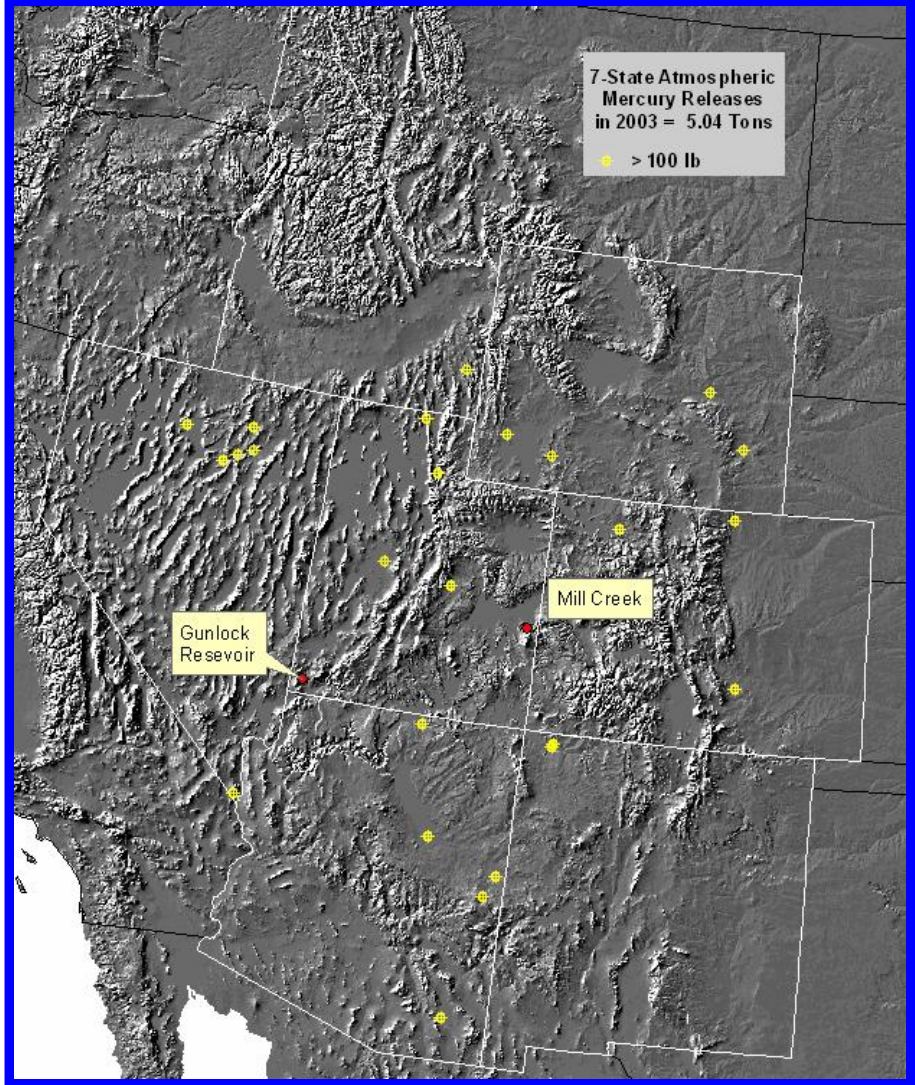
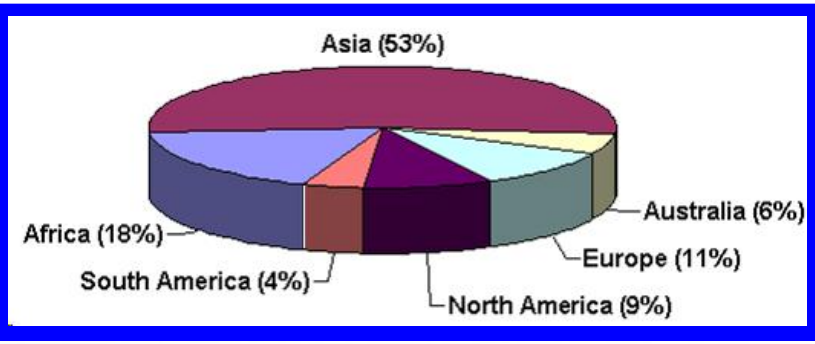
Inter-State Mercury Work Group

- States of Utah, Idaho and Nevada
- EPA from Regions 8, 9 and 10
- Discussions centered around the Emissions from the Nevada Gold Mines
- Understanding the Impacts of the Emissions
- Working Towards Lowering Impacts
- Requiring Reductions in Enforceable Permits

Clean Air Mercury Rule

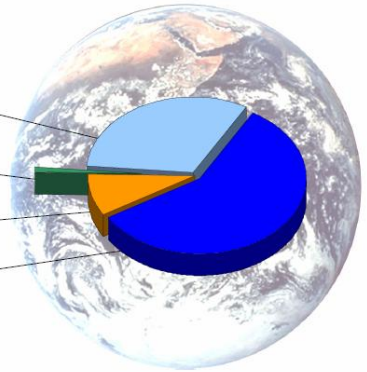
- Federal Rule Signed May 18, 2005
- Sets Nation Wide Caps
- Establish Mercury Emission Budget for Utah
- Submit Plan to EPA by Nov 2006
- Stakeholders will be involved with Developing Utah Rule





Global Mercury Emissions

Emissions from Natural Sources (Volcanoes, Forest Fires, etc.)	1540 tons
U.S. Coal-Fired Power Plants	48 tons
Re-Emission of Prior Anthropogenic Emissions	440 tons
New Anthropogenic Emissions*	2820 tons



*Note: Does not include U.S. Coal-Fired Power Plant Emissions

It is estimated that U.S. coal-fired power plants emit approximately 1% of annual global mercury emissions

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Source: UNEP Global Mercury Assessment, December 2002

T/F_Hg Meeting_8/12/03

2003 US Mercury Inventory = 70 Tons/Year
US = 2.4% of Global Anthropogenic Emissions

Seven Intermountain States = 5 T/Y (7% of US total)
Nevada = 2.5 T/Y
Nevada, 2001 = 6.5 T/Y

Sources:
EPA Global Emissions Context
DOE National Energy Technology Laboratory
EPA Toxic Release Inventory

Atmospheric Modeling of Mercury

Used for Clean Air Mercury Rule

- Power plants - cap and trade program

The model estimates deposition

- After mercury is released to the air; where is it deposited on the ground, lakes and rivers?

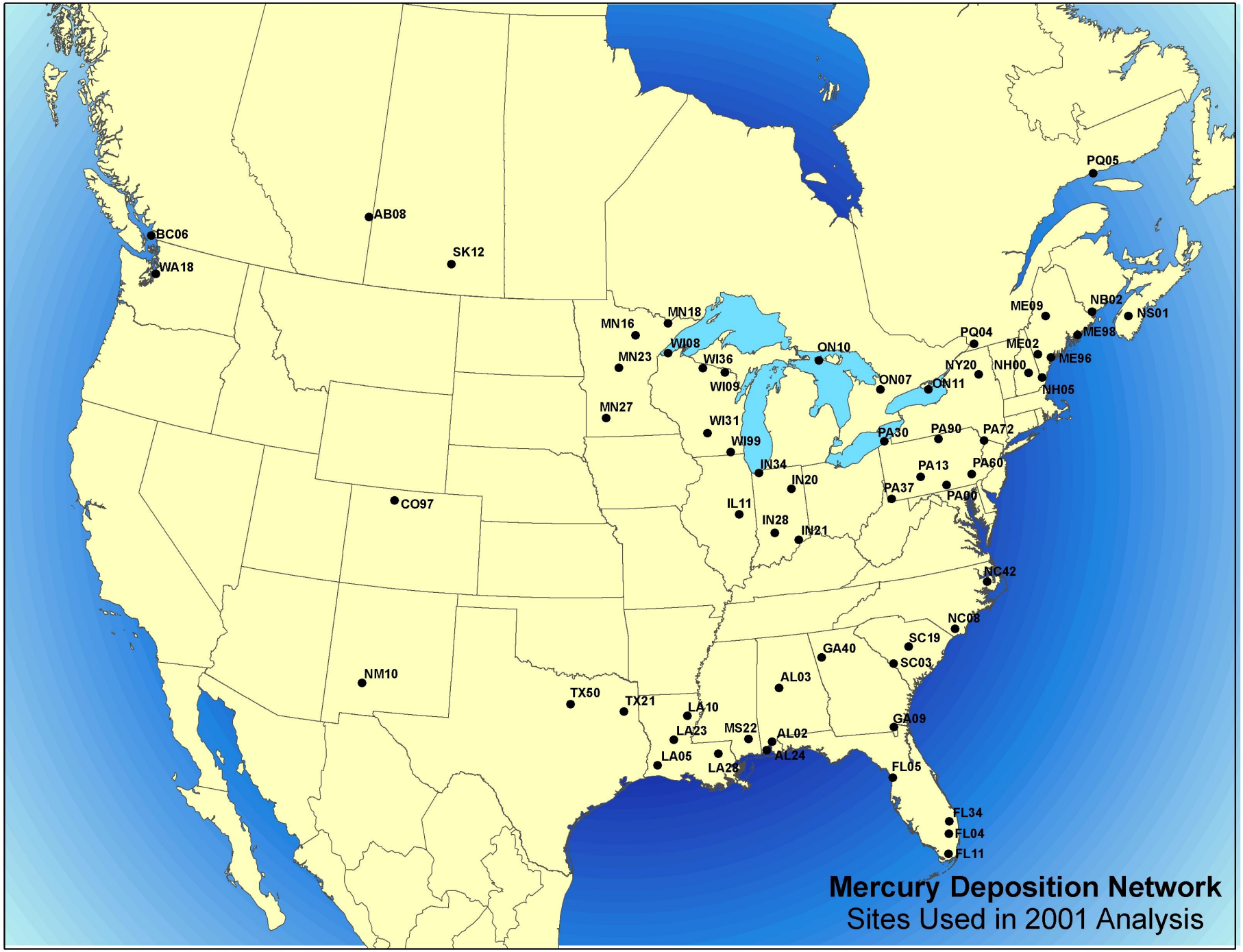
What is the current "state of the science" for this type of modeling?

Atmospheric Modeling – Elements of Uncertainty

1. Emissions Inventory
2. Meteorology
3. Chemical and Physical Interactions

Added Uncertainty when modeling Mercury

1. **Emissions Inventory**
   - Natural
   - Re-emissions/Legacy Emissions
   - Global Transport
     - Residence Time
2. **Meteorology**
   - Always Complex
     - Added Importance of Wet Deposition and Rainfall
3. **Chemical and Physical Interactions**
   - Elemental to Reactive Transformation
   - Assumed that Deposition = 50% Wet, 50% Dry
     - Dry Deposition Mechanism Poorly Understood
     - No Dry Deposition Monitors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Mercury Deposition Network
Sites Used in 2001 Analysis

Currently In A Classic Modeler's Bind (with a twist):

- Are we getting the right answer for the wrong reason?
- One half of the process (which is the least understood) has no observation data for a "ground-truth" comparison of model results

Mercury Models Are Likely To Change

- More research leads to better understanding of the processes involved

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